January 2010 Climate Summary for Southwest Lower Michigan

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Overview

January 2010 was warmer than normal, drier than normal and had significantly less snowfall than would be typically expected of January.

The first twelve days of January were colder than normal and it snowed nearly every day. Then around the 13th, the polar jet headed back north into Canada and took the cold air and snow with it. From the 13th through the 26th, temperatures remained above normal. After having precipitation nearly every day the first 12 days of the month, there was no measurable precipitation again until the 24th. A surge of warm air on the 24th brought temperatures to near 50 degrees across the area and, combined with a third of an inch of rain, melted most of the snow cover. Finally, the cold air came back in on the 27th.

Table 1. Reported temperature, precipitation, and snowfall for January 2009 in Grand Rapids, Lansing, and Muskegon.

Location		Temperature (degrees F)	Precipitation (inches)	Snowfall (inches)
Grand Rapids	*Reported*	25.0	0.85	9.3
	Normal	22.4	2.03	21.1
	Departure	+2.6	-1.18	-11.8
Lansing	*Reported*	22.8	0.86	9.4
	Normal	21.6	1.61	14.0
	Departure	+1.2	-0.75	-4.6
Muskegon	*Reported*	25.9	1.02	11.5
	Normal	23.5	2.22	34.4
	Departure	+2.4	-1.20	-22.9

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Temperature Summary for January:

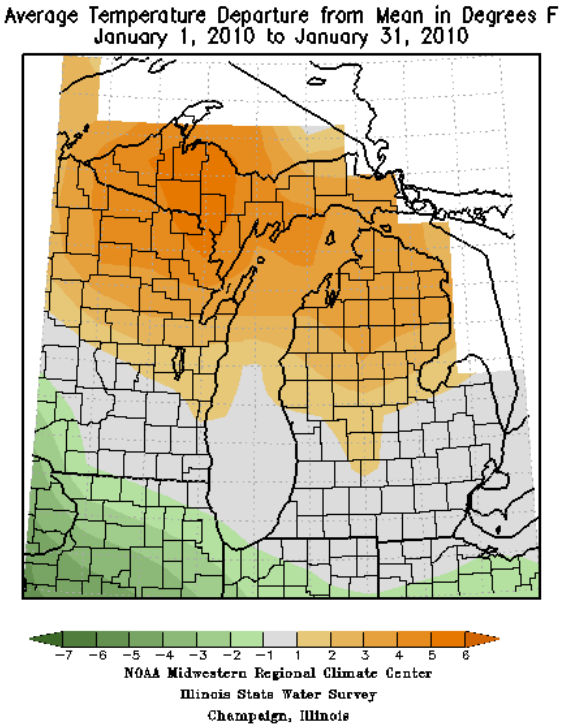

Figure. 1. Average temperature departure from normal during January 2010.

Temperatures were above normal over most of Michigan for January 2010. However, areas close to Interstate 94 experienced near normal temperatures (Figure. 1). This January was very unusual considering that it was warmer than normal. Typically, if January averages warmer than normal, the number of days the high temperature is at or below freezing is less than normal. In the past thirty years, there were thirteen years in which January's average temperature was on the warm side of normal; however, this January had the number of days with highs below freezing greater than normal. Besides that, the number of days where there was an inch or more of snow on the ground was greater than normal. This also would not be expected during a warmer than normal January.

What was also odd about this January was that even though it averaged warmer than normal, only one day, January 24th, got significantly warmer than 40 degrees. That too is very unusual. During the same thirty year period, those warm Januarys averaged six days with highs above 40 degrees and eighteen days with an inch or more of snow on the ground. So, even though it was a warmer than normal January, it may not have seemed that way since snow was on the ground nearly the entire month and most days had highs at or below freezing. There was no real January thaw—defined as three days significantly above freezing in a row.

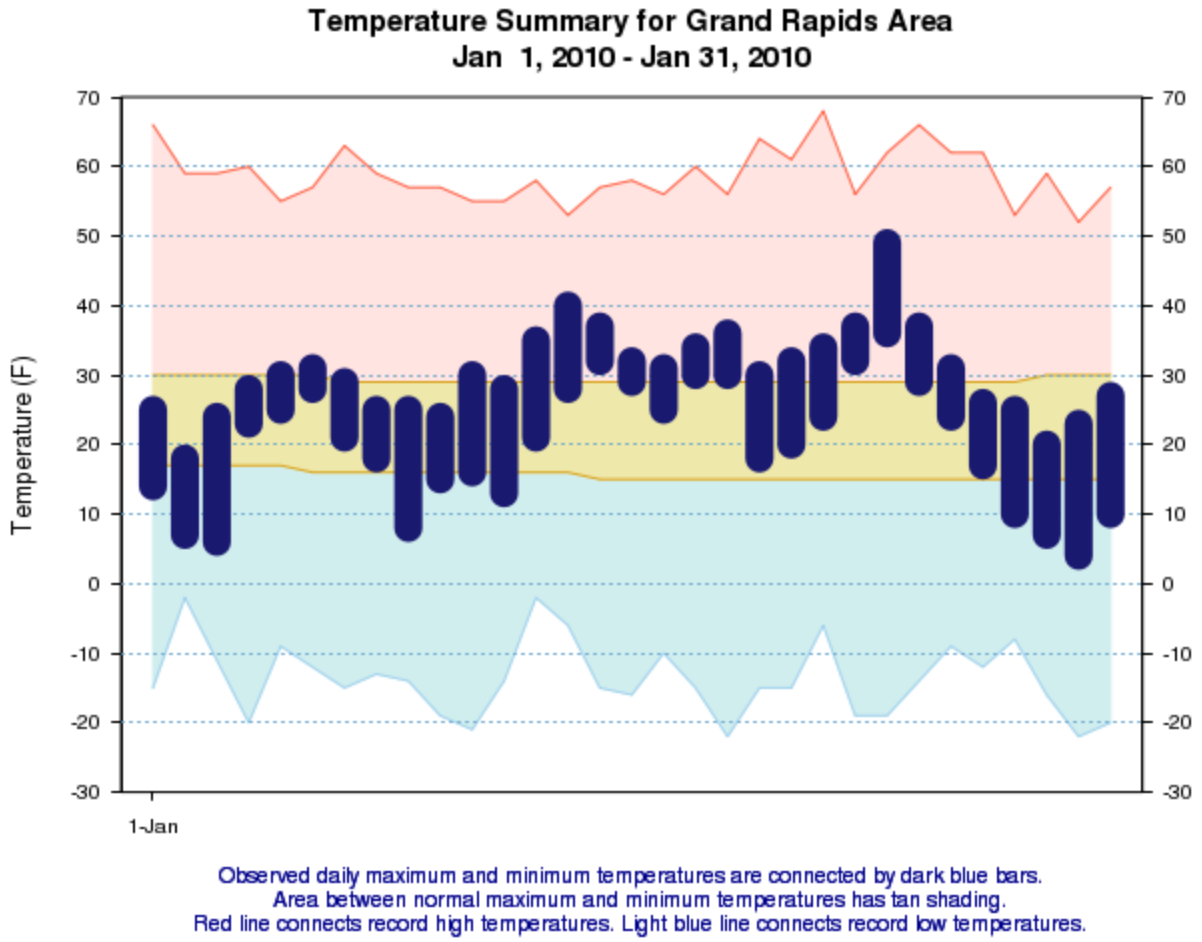

Figure. 2. Observed temperatures at the G.R. Ford International Airport. Dark blue bars are the temperature range for each day. The orange strip indicates the normal range of temperatures. Record high and low temperatures are indicated at the top of the pink area and the bottom of the blue area, respectively.

The warmer than normal temperatures during the middle of January are seen in the Grand Rapids temperature summary for January (Figure. 2). The spike in temperature on the 24th that melted the snow pack for one day is also apparent, as is the return to colder weather the last seven days of the month.

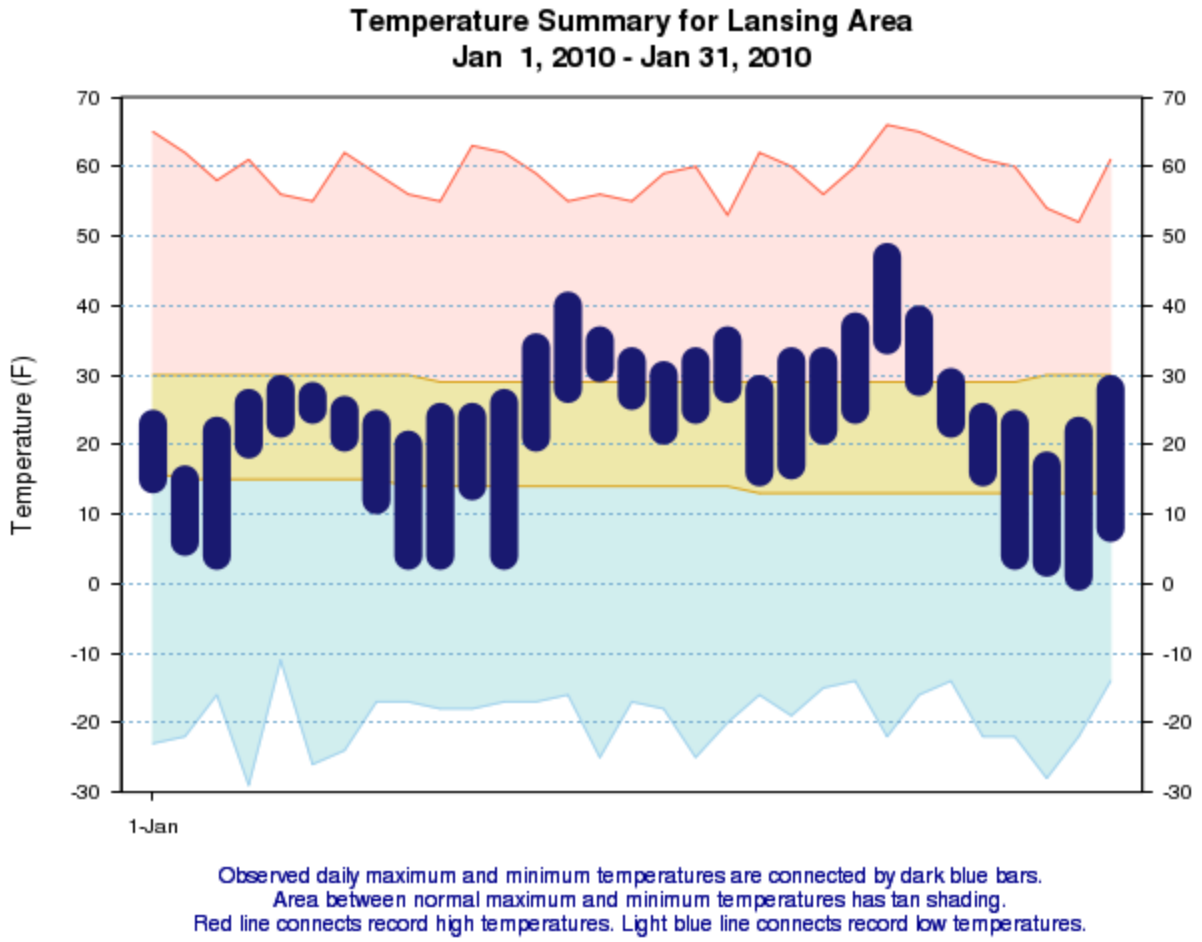

Figure. 3. As in Figure. 2, except for the Lansing/Capital City airport.

Both the colder than normal temperatures during the first twelve days of the month and the slight warm up during the middle of January are seen clearly in the Lansing temperature summary for January (Figure. 3). As with Grand Rapids, the spike in temperature on the 24th that melted the snow cover off for one day is also apparent, as is the return to colder weather the last seven days of the month. It can also be seen by comparing the Grand Rapids and Lansing temperature charts together that Lansing had more days with highs below freezing than did Grand Rapids.

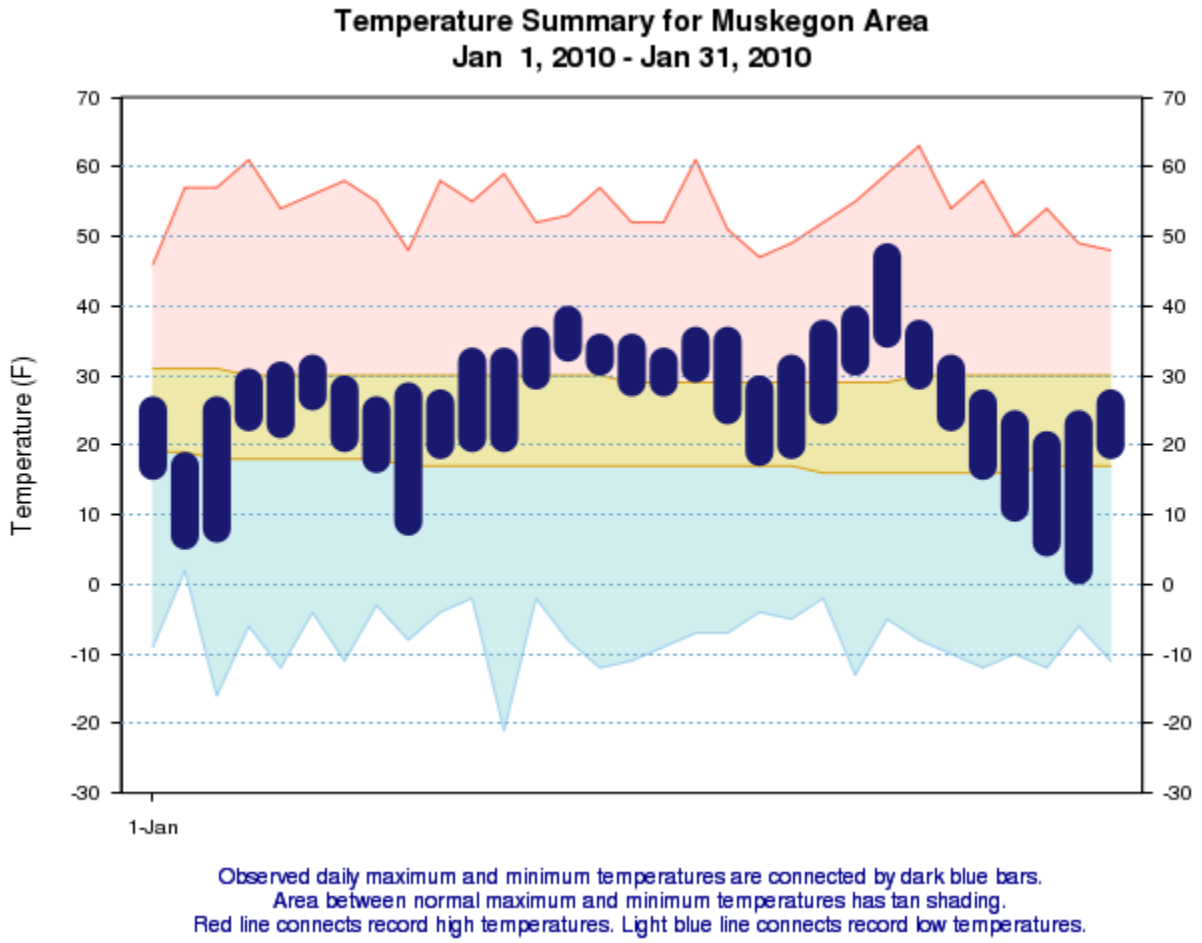

Figure. 4. As in Figure. 3, except for the Muskegon County airport.

At Muskegon, the colder than normal temperatures during the first twelve days of the month are not as apparent as they were in both Grand Rapids and Lansing data. The slight warm up during the middle of January though is clearly seen clearly in the Muskegon temperature summary for January (Figure. 4), just as it was for both Grand Rapids (Figure. 2) and Lansing (Figure. 3). It can also be seen by comparing the Grand Rapids and Lansing temperature charts together with Muskegon that Muskegon had fewer days with highs below freezing than either Grand Rapids or Lansing.

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Precipitation Summary for January:

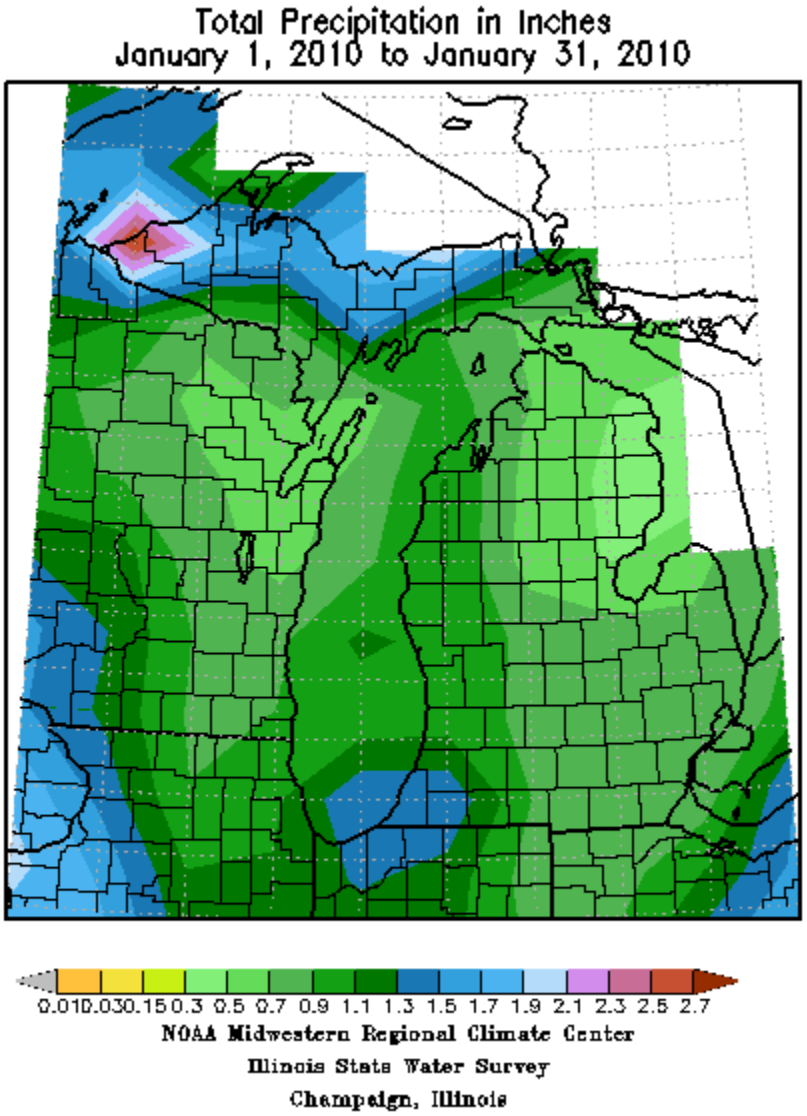

Figure. 5. Total precipitation for January 2010.

January 2010 was a fairly dry month across the area. The darker green and blue areas over the western counties of Lower Michigan on the total precipitation chart (Figure. 5) show that Lake Michigan did locally increase the precipitation total near and west of US-131. Those areas had the greatest precipitation in January—in this case, over one and half inches.

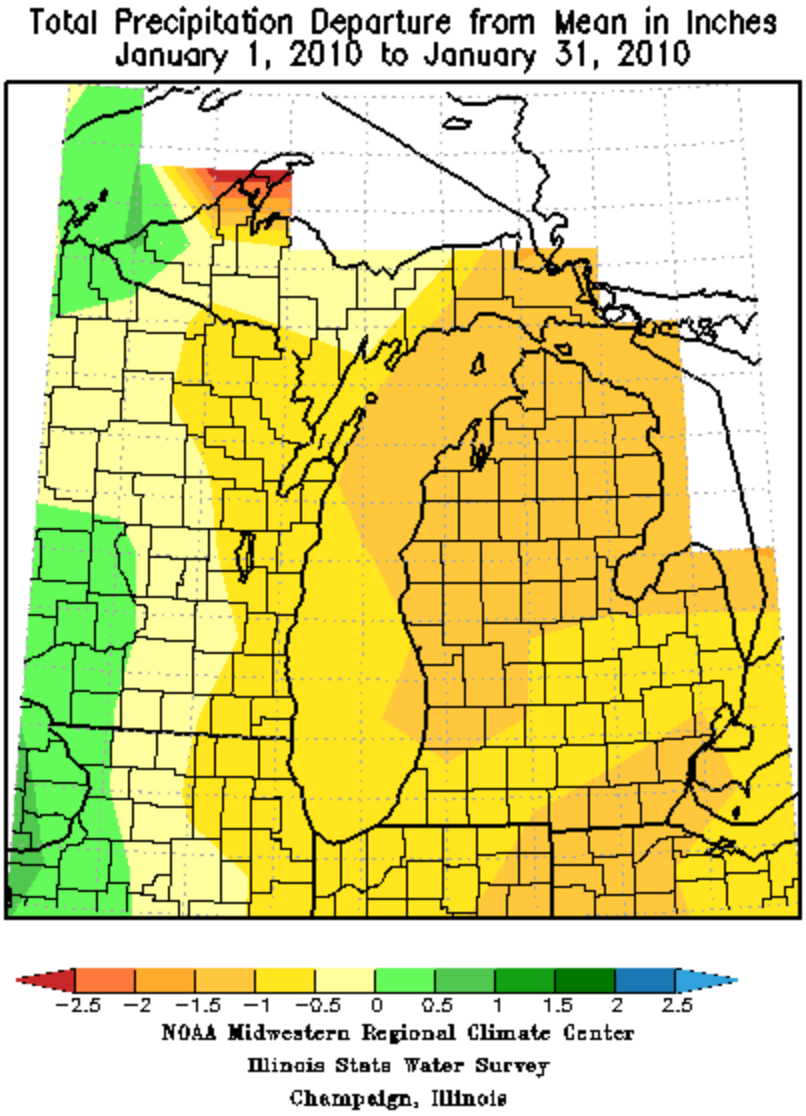

Figure. 6. Precipitation departure from normal during January 2010.

Even though there was an increase in the total precipitation near Lake Michigan in January (Figure. 5), it can be seen that, relative to normal, most of Southwest Lower Michigan had deficits of around an inch (Figure. 6). Lake Michigan did not significantly impact the depature from normal.

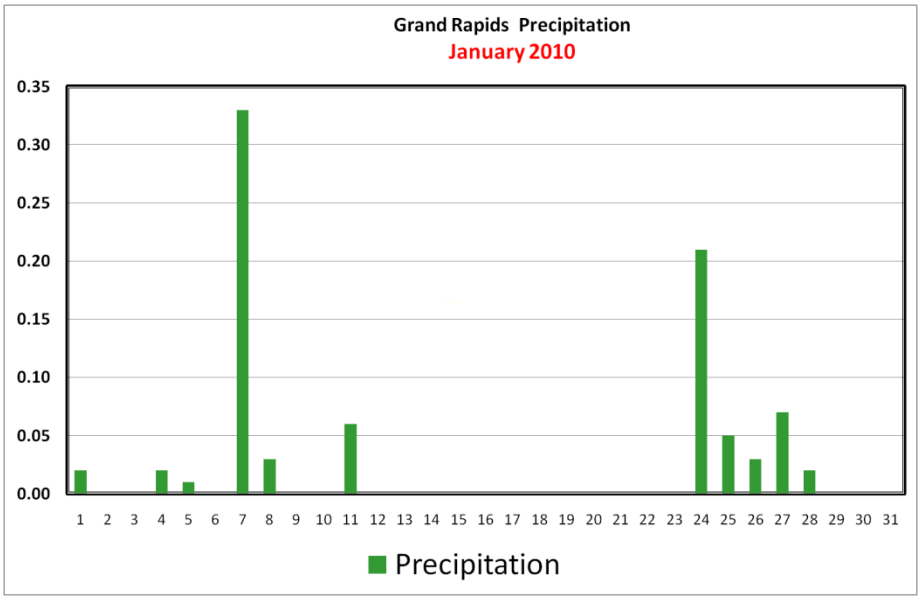

Figure. 7. Daily precipitation in inches for January 2010 at the G.R. Ford International Airport.

The warmer than normal period during the middle of January was also a dry period at all three locations: Grand Rapids (Figure. 7), Lansing (Figure. 8), and Muskegon (Figure. 9). Precipitation frequency was well below normal at all three sites. In a typical January, most locations in Southwest Lower Michigan see around fifteen days with measurable precipitation. This January, most locations had about ten days with measurable precipitation. Only thirteen percent of the Januarys since 1950 have had so few days with measurable precipitation.

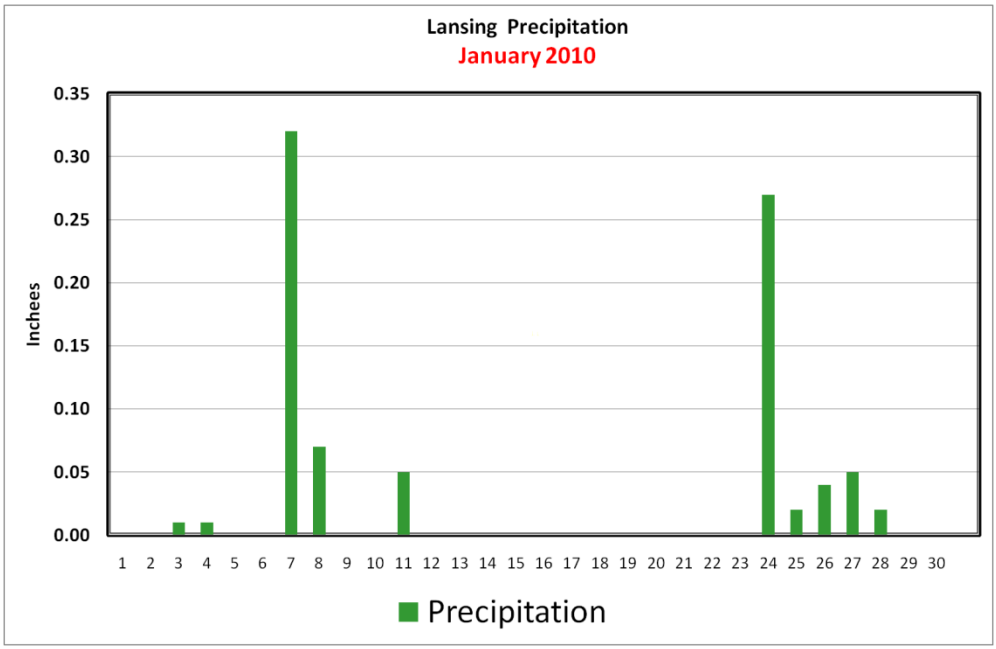

Figure. 8. As in Figure. 7, except for the Lansing Capital City Airport.

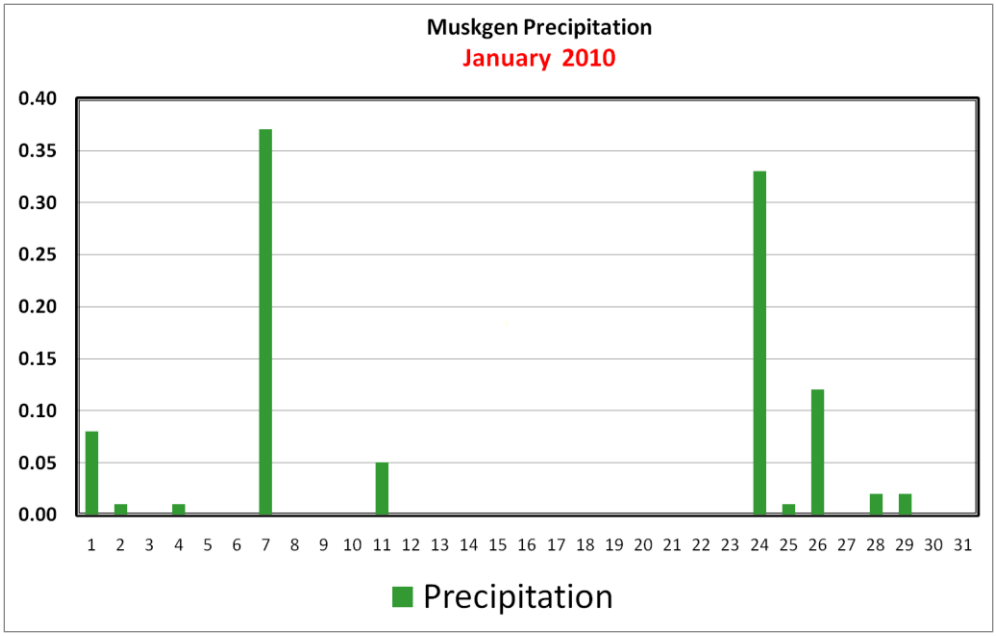

Figure. 9. As in Figure. 7, except for the Muskegon County Airport.

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Snowfall Summary for January:

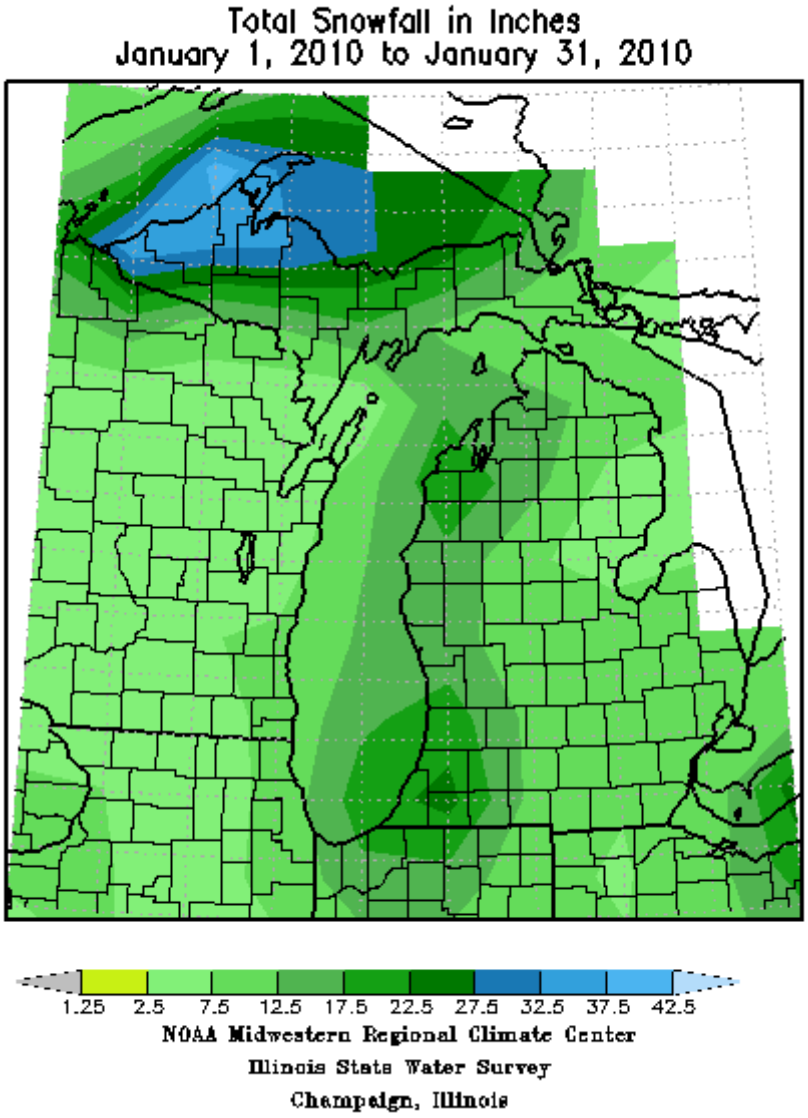

Figure. 10. The total snowfall for January 2010.

Areas east of US-131 had from 8 to 10 inches of snow, while areas near and west of US-131 had from 10 to 20 inches of snow. Locally, areas in western Van Buren County had over 25 inches of snow (Figure. 10). South Haven, in extreme northwest Van Buren County, reported 49.8 inches of snow in January, with 46.8 inches falling during the first week of the month.

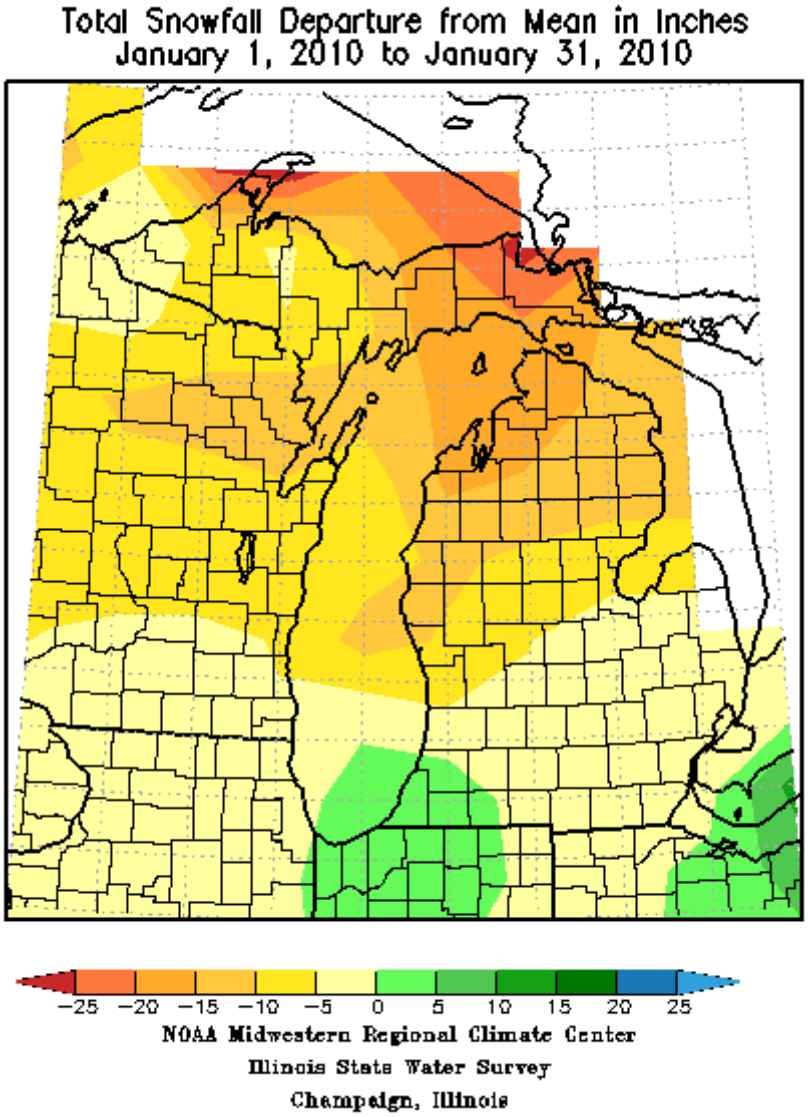

Figure. 11. Snowfall departure from normal for January 2010.

As with precipitation, snowfall was below normal across most of Southwest Lower Michigan in January (Figure. 11). Unlike with the precipitation, the area south and west of Grand Rapids, which had a lake effect snow event during the first week of the month, did see enough snowfall to bring that area near normal snowfall.

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Significant Weather Events during January 2010:

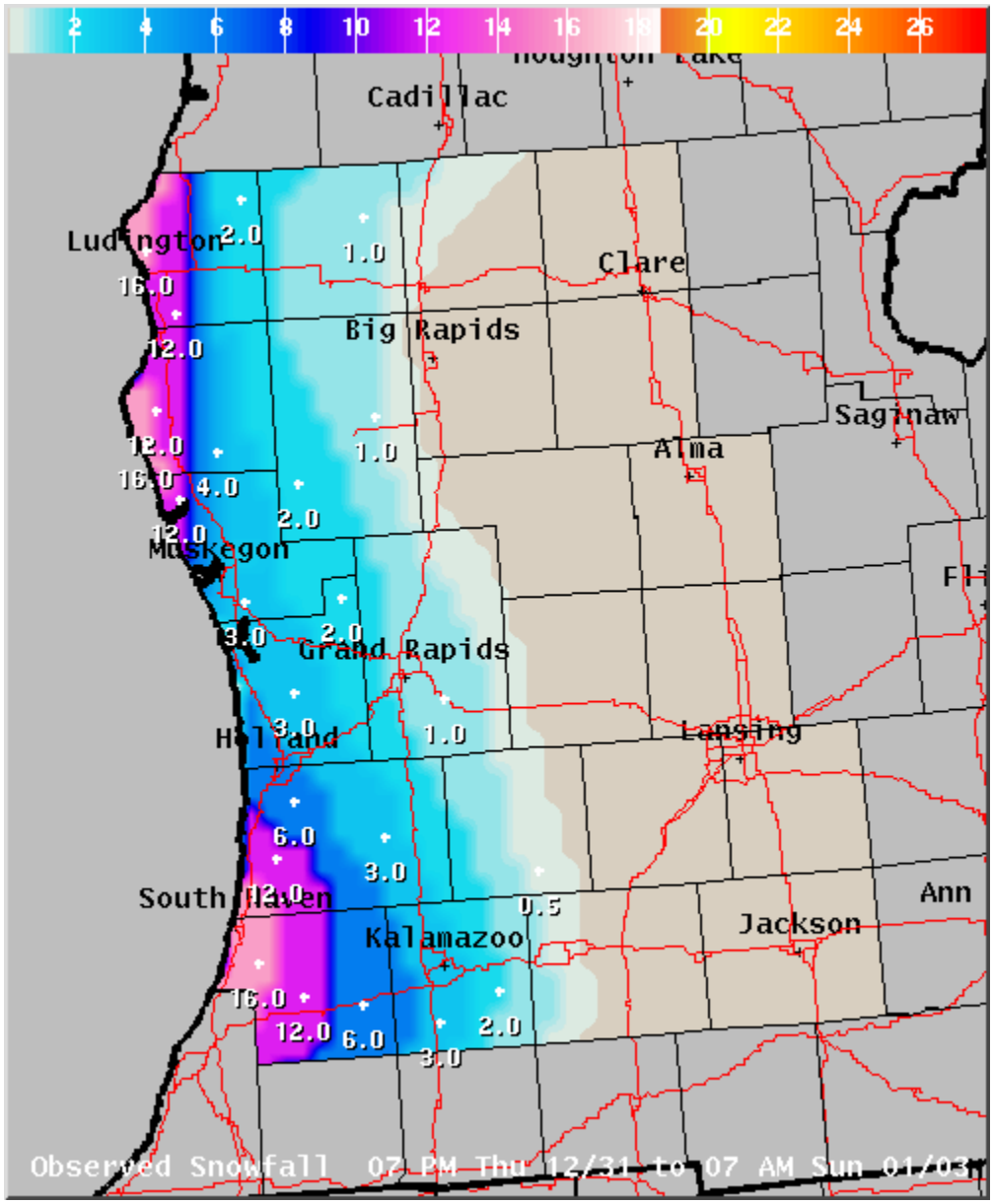

Figure. 12. Lake effect snowfall event totals from December 31st through January 3rd .

The month of January started off with a significant lake effect snowfall event. Areas near and west of US-131 had measurable snowfall from this event. Locations over southwest Allegan, western Van Buren and extreme western Mason and Oceana Counties had 10 to 16 inches of snow (Figure. 12).

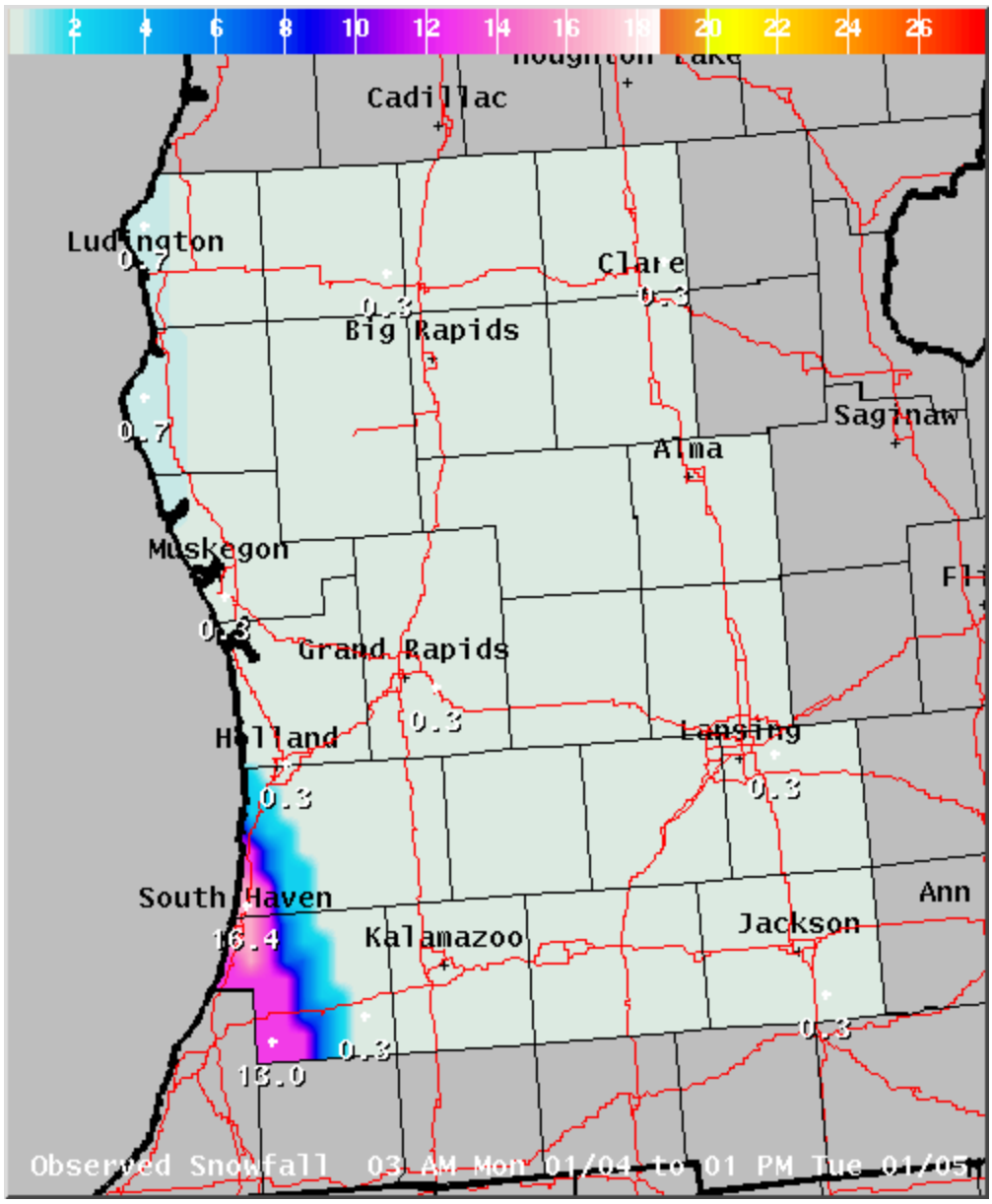

Figure. 13. The second lake effect snow event in January. The snow started during the morning of the 4th and continued through the early afternoon of the 5th.

The second lake effect snow event was significantly more limited in coverage. It only impacted the extreme southwestern section of Allegan County, near South Haven and the western third of Van Buren County (Figure. 13). This area saw up to 1½ feet of snow from this event. This was just after the 1½ feet they had with the event around New Years. Snow depths were reported to be over 2 feet in some areas of western Van Buren County after the second event.

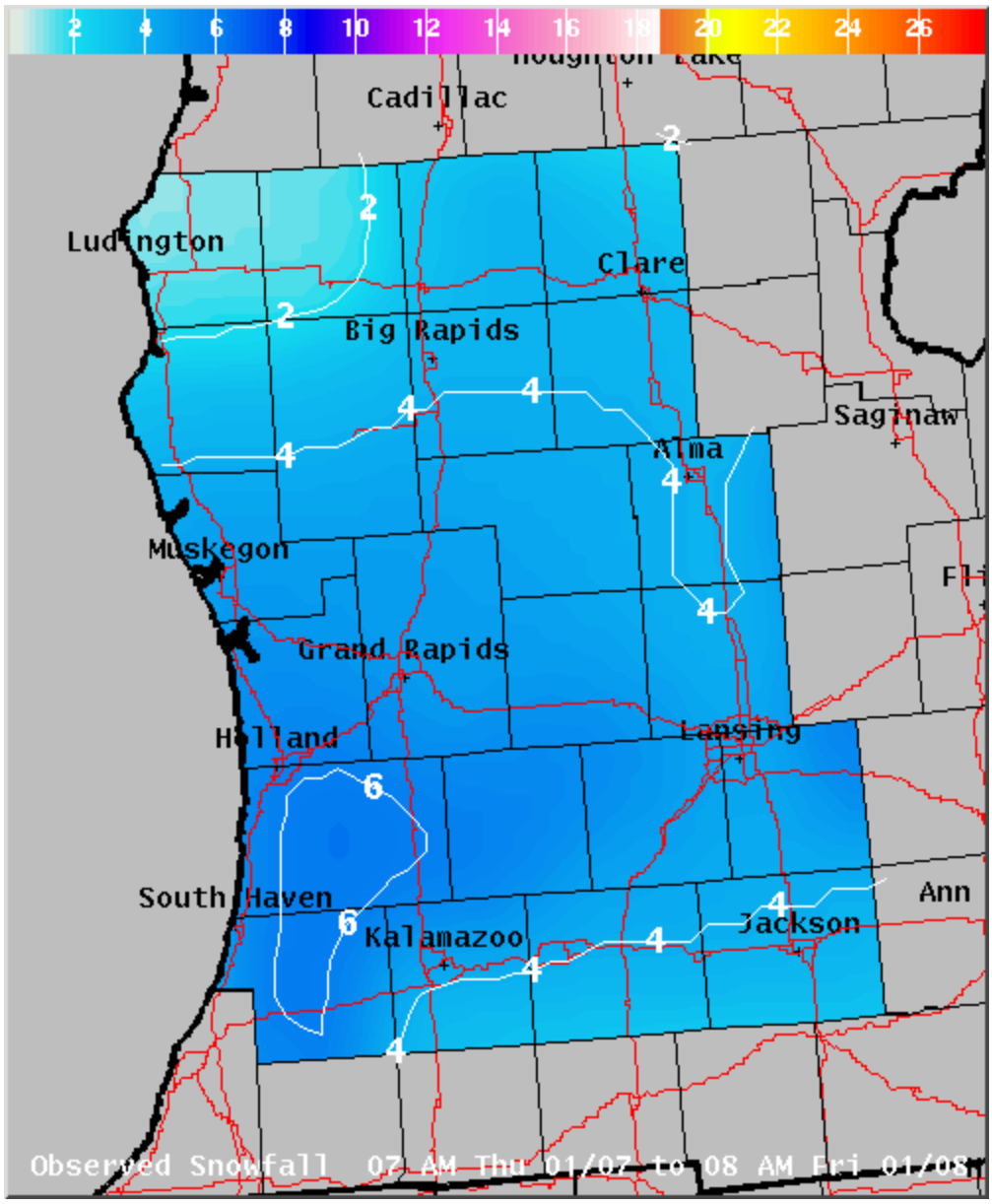

Figure. 14. Snowfall from the 7th to the 8th of January.

A storm system tracked from southwestern Illinois on the morning of the 7th to northern Ohio during the morning of the 8th. That produced a general 4 to 6 inches across most of Southwest Lower Michigan (Figure. 14). This was the only event of the month to bring significant snowfall to nearly the entire area of Southwest Michigan.

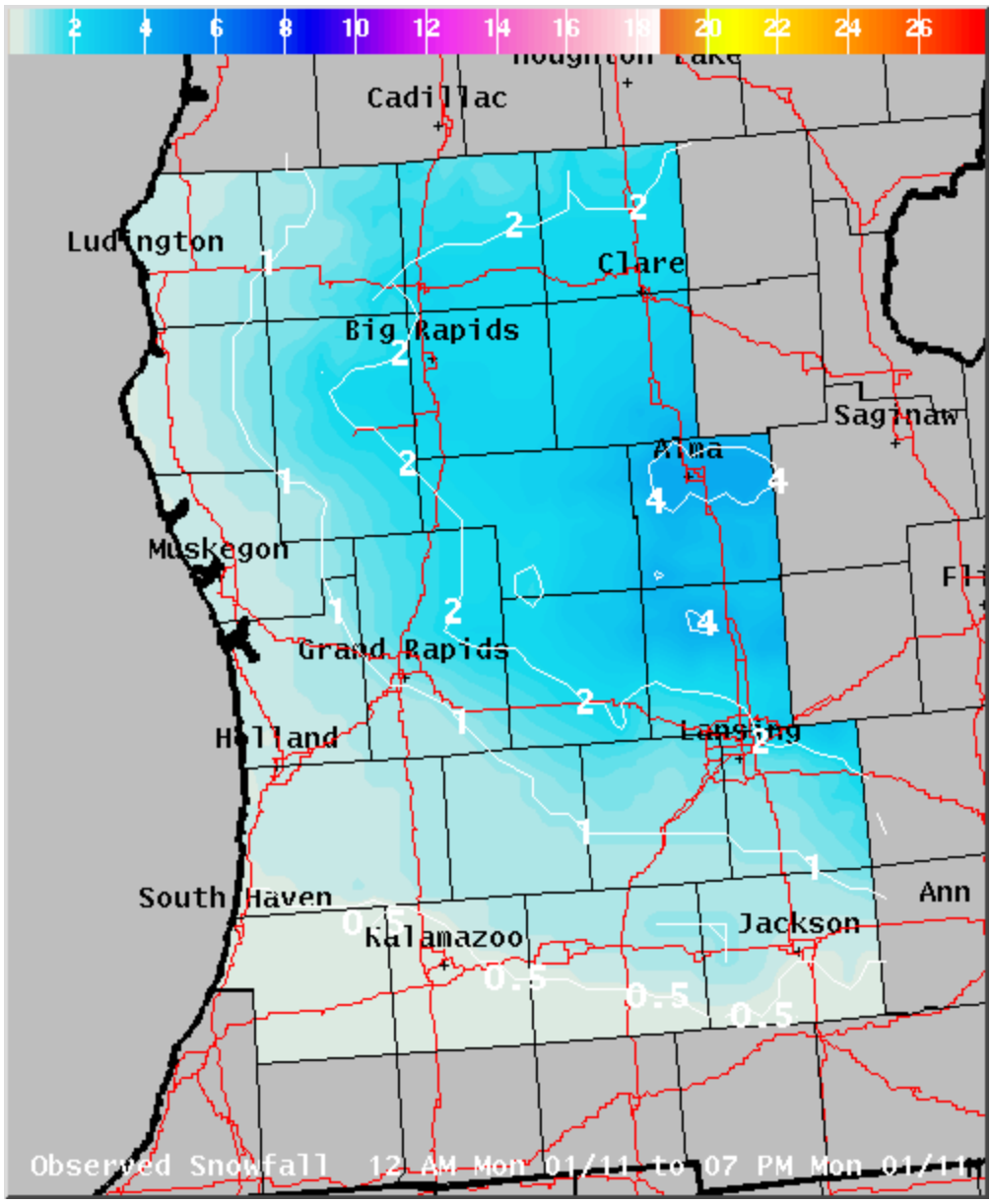

Figure. 15. Snowfall during the 11th of January.

A clipper system tracked quickly from central Upper Michigan southeast across western Lake Huron by the morning of the 11th. That resulted in 2 to 4 inches of snow over areas east of a line from Big Rapids to Lansing (Figure. 15).

Between the 12th and the 23rd, there were a series of clipper systems that crossed central Canada. Each of these clipper systems brought a weak cold front through Southwest Lower Michigan. Temperatures remained above normal through this time, with highs mainly in the 30s and lows mostly in the 20s. As a result, very little snow melted. Except for the 13th and the 17th, it was mostly cloudy during this entire time.

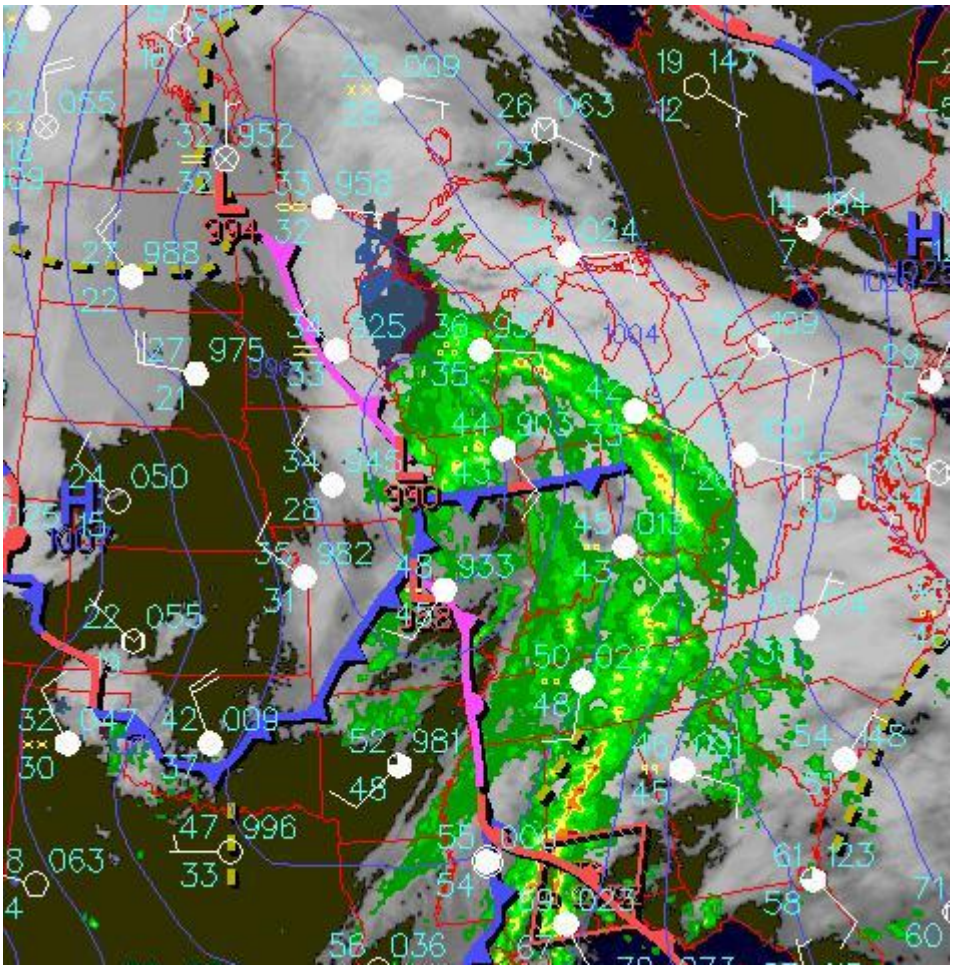

Figure. 16. A strong winter storm over western Iowa brought rain to Southwest Lower Michigan during the morning of January 24th.

A strong winter storm tracked northeast from western Colorado on the morning of the 23rd to western Iowa by 7:30 AM on the morning of the 24th (Figure. 16). This brought the only real thaw, albeit briefly, to Southwest Michigan. Most areas had above freezing temperatures and around a quarter inch of rain with this system. Strong southerly winds brought temperatures to between 45 and 50 degrees during the afternoon of the 24th. Some thunderstorms passed just southeast of Grand Rapids just before 7 AM.

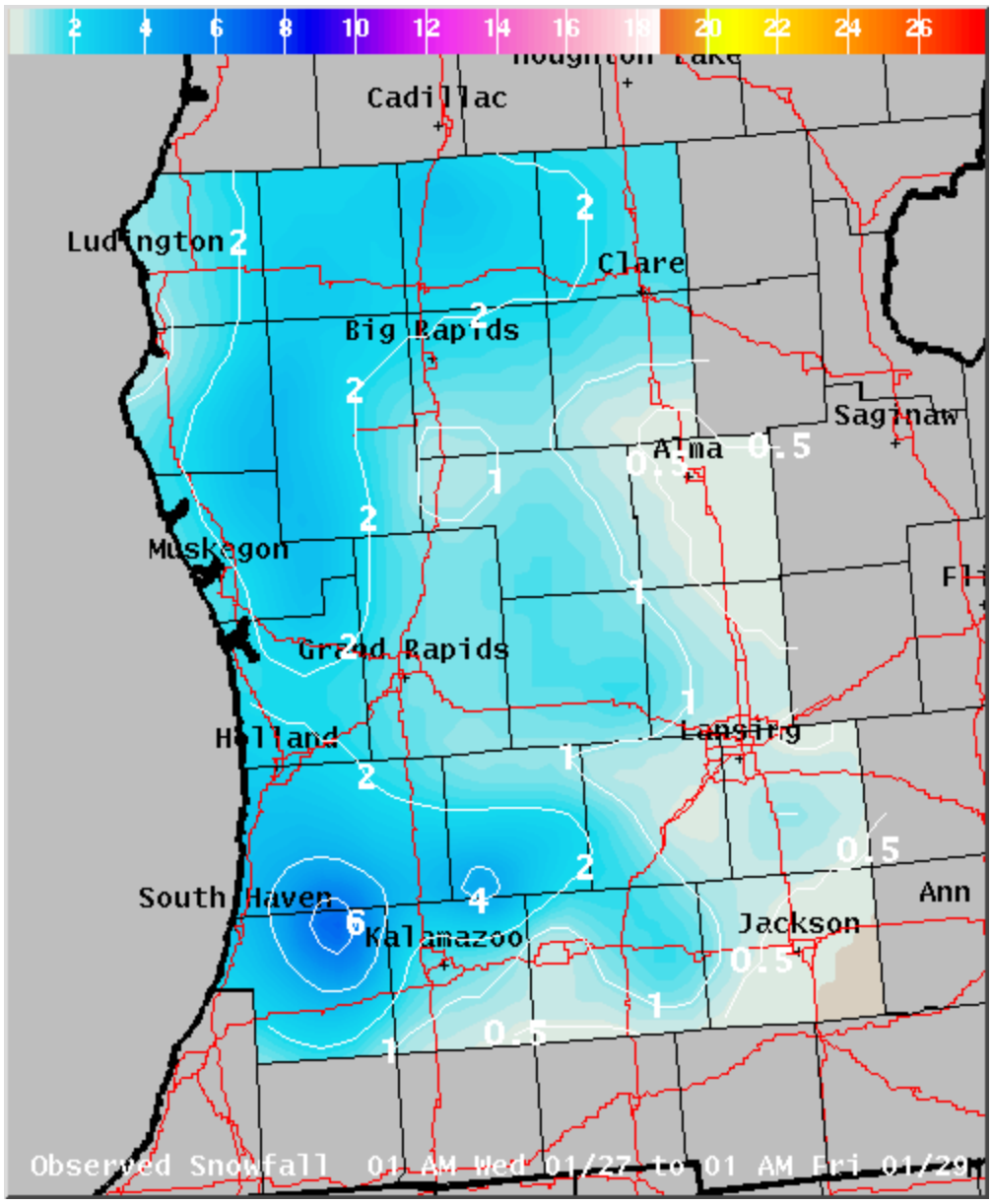

Figure. 17. Snowfall from the early morning of the 27th through the early morning of the 29th.

A storm from northern Canada dropped nearly due south to just north of Lake Huron by the morning of the 28th. That brought the cold air back to the area for the remainder of the month. As a cold front moved through the area during the afternoon of the 27th into the early morning hours of the 28th, there was a general 1 to 2 inches of snow. Areas southwest of Grand Rapids saw lake enhanced snowfall from this system and that resulted in 4 to 6 inches of snow.